BEFORE
THE PUBLIC SERVICE COMMISSION OF
SOUTH CAROLINA

DOCKET NO. 2011-271-E

In the Matter of:	)	
	)	
Application of Duke Energy Carolinas, LLC For Authority to Adjust and Increase Its Electric Rates and Charges	)))	**DIRECT TESTIMONY OF DHIAA M. JAMIL FOR DUKE ENERGY CAROLINAS, LLC**
	)	
	)	

I. INTRODUCTION AND OVERVIEW

Q. PLEASE STATE YOUR NAME, ADDRESS, AND POSITION.

A. My name is Dhiaa M. Jamil. My business address is 526 South Church Street, Charlotte, North Carolina. I am Group Executive and Chief Generation Officer for Duke Energy Corporation ("Duke Energy") and Chief Nuclear Officer for Duke Energy Carolinas, LLC ("Duke Energy Carolinas" or the "Company").

Q. WHAT ARE YOUR PRESENT RESPONSIBILITIES AT DUKE ENERGY?

A. As Group Executive and Chief Generation Officer, and Chief Nuclear Officer, I am responsible for the safe, reliable, and efficient operation of the Company's nuclear, fossil, and hydroelectric ("hydro") generation fleets. I am also responsible for Nuclear Development, Supply Chain, and Environmental Health and Safety.

Q. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND PROFESSIONAL EXPERIENCE.

A. I graduated from the University of North Carolina at Charlotte with a Bachelor of Science degree in electrical engineering, and I recently completed the Harvard Business School Advanced Management Program. I am a professional engineer in South Carolina and North Carolina, and I have completed the Institute of Nuclear Power Operations' ("INPO") senior nuclear plant management course and received my Duke Energy technical nuclear certification. I served as a senior member of the Institute of Electrical & Electronics Engineers and as a member of the Council of the National Academy for Nuclear Training. I was also a member of Dominion Energy Management Safety Review Advisory Committee, the Tennessee Valley Authority Nuclear Safety Review Board, and currently serve on the INPO Executive Advisory

Group and the Nuclear Strategic Initiative Advisory Committee of the Nuclear Energy Institute. I am a member of the board of trustees for the University of North Carolina in Charlotte and also serve as the chairman of the Energy Production and Infrastructure Center Advisory Board for the University.

I began my career at Duke Energy Carolinas in 1981 as a design engineer in the design engineering department. After a series of promotions, I was named Oconee Nuclear Station ("Oconee") Electrical Systems Engineering Supervisor in 1989; Electrical Engineering Manager at McGuire Nuclear Station ("McGuire") in 1994; Maintenance Superintendent, McGuire in 1997; Station Manager of McGuire in September 1999; and Vice President of McGuire in September 2002. I was named Vice President of Catawba Nuclear Station ("Catawba") in July 2003, with responsibility for all aspects of the safe and efficient operation of that nuclear site. In December 2006, I was named Senior Vice President of Nuclear Support, where I was responsible for plant support, major projects and fuel management for the nuclear fleet. I was also responsible for regulatory support, nuclear oversight and safety analysis functions. I was named Group Executive and Chief Nuclear Officer in January 2008. In July 2009, I was named to my current role as Group Executive and Chief Generation Officer for Duke Energy, and I continue in the role of Chief Nuclear Officer for Duke Energy Carolinas.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?

A. Yes. I testified in Docket No. 2009-226-E, the Company's last general rate case before this Commission in 2009 ("2009 Rate Case"), and in proceedings related to the Company's requests for approval of decision to incur nuclear development costs associated with the proposed William States Lee, III Nuclear Station ("Lee Nuclear Station") in Docket No. 2007-440-E.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. The purpose of my testimony is to provide information in support of the Company's request for a base rate adjustment. To this end, I: (1) describe the Company's generation asset portfolio, which includes nuclear, fossil, hydro ("fossil/hydro"), and renewable generation assets, (2) highlight the generation portfolio operating objectives and operational performance during the period of January 2010 through December 2010 ("Test Period"), (3) update the Commission on the capital additions (including new plants expected to come into service) since the 2009 Rate Case and planned capital additions for the next few years, (4) support the construction work in progress ("CWIP") the Company seeks to include in rate base, and (5) explain the key drivers impacting operations and maintenance ("O&M") costs for generation operations.

Q. MR. JAMIL, PLEASE PROVIDE AN OVERVIEW OF THE INVESTMENT MADE BY THE COMPANY SINCE THE 2009 RATE CASE FOR GENERATION RATE BASE ADDITIONS.

A. The Company has invested over $2.6 billion for capital additions since the 2009 Rate Case within the nuclear, fossil/hydro and renewable fleets. The revenue requirement for these capital additions is included in the revenue requirement shown in Witness Shrum's testimony and Exhibit 1. These capital additions are part of the Company's efforts to add new generation assets, maintain reliability, modernize existing assets for greater efficiency and due to obsolescence, continue with life extension efforts of nuclear units, relicensing ventures, as well as to comply with new or updated regulatory requirements. Many of these objectives were initially presented in the 2009 Rate Case. As noted in that proceeding, the Company's generation assets are aging and various additions, replacements and/or upgrades are needed to support continued safe, efficient, and reliable operations. It is vitally important that these assets are maintained in a manner that ensures safety and regulatory requirements are met as well as customer needs and expectations. Modernization efforts and those involving new generation resources span multiple years as do many regulatory compliance efforts. Additional detail is provided later in my testimony.

Q. HOW DO CUSTOMERS BENEFIT FROM THE COMPANY'S GENERATION MODERNIZATION PROGRAM?

A. Duke Energy Carolinas' customers benefit from new generation resources that are highly efficient and environmentally cleaner than older resources. Additional benefits are realized with output efficiencies or gains in megawatts ("MWs") for existing nuclear and hydro resources, lower levels of pollutants as a result of environmental equipment on coal-fired resources, and the continued operation of the Company's diverse portfolio of existing generation assets. Regulatory compliance, life extensions and relicensing, and reduced greenhouse gas emissions for existing generation resources further enhance the Company's strong history of safely providing efficient, reliable and low-cost electricity. Additionally, the Company has added environmentally friendly renewable generation to an already diverse portfolio of generation assets. This renewable generation includes the Company's solar photovoltaic distributed generation ("Solar PVDG") program providing customers with additional greenhouse gas emissions free generation.

Q. ARE SOUTH CAROLINA CUSTOMERS CHARGED A HIGHER RATE FOR RENEWABLE GENERATION ASSOCIATED WITH THE NORTH CAROLINA RENEWABLE ENERGY STATUTE?

A. No. South Carolina customers are held harmless with respect to the renewable generation associated with North Carolina G.S. § 62-133.8 ("Renewable Energy and Energy Efficiency Portfolio Standard" ("REPS")). An avoided cost rate is used in determining the rates, which results in neither advantaging nor disadvantaging South Carolina retail customers. Details on the most recently approved avoided cost can be found in Docket No. 1995-1192-E, Order No. 2011-392, dated May 2011.

Q. HAS THE COMPANY ATTEMPTED TO LIMIT COST INCREASES FOR CAPITAL ADDITIONS AND O&M?

A. Yes. The Company controls costs for capital projects and O&M utilizing a rigorous cost management program. Costs are sustainably controlled through routine executive oversight of project budget and activity reporting with new projects requiring approval by progressively higher levels of management depending on total project cost. Ongoing project and O&M costs are controlled through strategic planning and procurement; efficient execution or oversight of contractors by a trained and experienced workforce; rigorous monitoring of work quality; thorough critiques to drive out process improvement; and industry benchmarking to ensure best practices are being utilized. However, despite these efforts the Company continues to face new costs and inflationary pressures.

Q. IS THE COMPANY PROPOSING TO INCLUDE CWIP IN RATE BASE?

A. Yes. As provided in the testimony of Witness Shrum, as of October 31, 2011, the Company projects it will have recorded approximately $2 billion in CWIP[1]. The chart below provides more detail reflecting some of the significant projects and the South Carolina retail shares. Additional detail for the noted construction projects, as well as other production projects, is provided later in my testimony.

Description	Total Carolinas	South Carolina Retail
Nuclear - Tornado/HELB	$534 million	$127 million
Other Nuclear	$237 million	$56 million
Cliffside Unit 6	$676 million	$138 million
Dan River CC	$415 million	$98 million
Other Fossil/Hydro	$141 million	$34 million

Q. ARE THERE CURRENT ISSUES IN EITHER THE NUCLEAR OR FOSSIL GENERATION INDUSTRIES THAT MAY FURTHER IMPACT COSTS FOR CAPITAL AND/OR O&M?

A. Yes, uncertainty exists on whether the Nuclear Regulatory Commission ("NRC") will impose additional regulatory requirements resulting from the crisis at the Fukushima Daiichi nuclear plant in Japan following a significant earthquake and damage resulting from a subsequent tsunami. Another key area of uncertainty relates to environmental regulation on emissions resulting from the generation of

[1] On a total system basis, including AFUDC.

electricity as well as the by-products produced from the coal combustion process. Additionally, the environmental footprint of generating facilities extends beyond emissions and by-products including, for example, the Environmental Protection Agency's ("EPA") proposed 316(b) Cooling Water Intake Rule. Based on industry discussions, impacts are highly possible in these key areas and will likely result in added and perhaps significant capital and/or O&M costs.

Q. MR. JAMIL, HOW IS THE REMAINDER OF YOUR TESTIMONY ORGANIZED?

A. I first describe the assets and discuss the operational objectives and performance of the nuclear fleet. I then provide details associated with capital and O&M costs specific to the nuclear fleet. I also provide a forward look on key projects, cost drivers, and challenges. I then discuss the same items for the Company's fossil/hydro and renewable fleets with additional detailed information on new generation projects scheduled for operation in 2011 and 2012.

II. NUCLEAR FLEET

Q. PLEASE DESCRIBE DUKE ENERGY CAROLINAS' NUCLEAR GENERATION PORTFOLIO.

A. Duke Energy Carolinas' nuclear generation portfolio consists of approximately 5,200 MWs of generating capacity[2], made up as follows:

Oconee -	2,538 MWs
McGuire -	2,200 MWs
Catawba[3] -	435 MWs

Q. PLEASE GENERALLY DESCRIBE DUKE ENERGY CAROLINAS' NUCLEAR GENERATION ASSETS.

A. The Company's nuclear fleet consists of three generating stations, with a total of seven units. Oconee, located in Oconee County, South Carolina, began commercial operation in 1973 and was the first nuclear station designed, built and operated by Duke Energy Carolinas. It has the distinction of being the second nuclear station in the country to have its license, originally issued for 40 years, renewed for an additional 20 years by the NRC.

McGuire, located in Mecklenburg County, North Carolina, began commercial operation in 1981, and Catawba, located on Lake Wylie in York County, South Carolina, began commercial operation in 1985. In 2003, the NRC renewed the licenses for McGuire and Catawba for up to an additional 20 years each. Duke Energy Carolinas jointly owns Catawba with North Carolina Municipal Power Agency Number One, North Carolina Electric Membership Corporation, and

[2] As of December 31, 2010.
[3] Duke Energy Carolinas' 19.2% ownership of Catawba

Piedmont Municipal Power Agency. In 2010, the nuclear units provided approximately 51% of Duke Energy Carolinas' total generation.

Q. WHAT IS THE COMPANY'S OBJECTIVE IN OPERATING ITS NUCLEAR GENERATION ASSETS?

A. The primary objective of Duke Energy Carolinas' nuclear generation department is to safely provide reliable and cost effective electricity to the Company's Carolinas customers. To achieve this objective, the Company focuses on a number of key areas. Operations personnel and other station employees are well-trained and execute their responsibilities to the highest standards, in accordance with detailed procedures. The Company reliably maintains station equipment and systems and ensures timely implementation of work plans and projects that enhance the performance of systems, equipment, and personnel. Station refueling and maintenance outages are conducted through executing well-planned, quality work activities, which effectively ready the plant for operation until the next planned outage.

Q. PLEASE DISCUSS THE PERFORMANCE OF THE COMPANY'S NUCLEAR GENERATING FLEET DURING THE TEST PERIOD.

A. As in years past, the Company's nuclear fleet continued to perform well, ending the Test Period with especially good performance. The Company's seven nuclear units operated at a system average capacity factor of 95.88% for the Test Period, which is the highest nuclear capacity factor in Company history. Oconee site set the highest capacity factor in station history and other individual units also set records for the period. In addition, Catawba unit 2 concluded a 517 day breaker-to-breaker run when it began a refueling outage in September 2010. This accomplishment followed breaker-to-breaker runs of 485 days and 497 days at McGuire unit 1 and Oconee unit 2, respectively prior to the spring 2010 refueling outages.

The system average nuclear capacity factor has been above 90% for eleven consecutive years. The achieved Test Period system nuclear capacity factor of 95.88% reflects four refueling outages and exceeds the average capacity factor of 91.20% for all U.S. nuclear plants in 2010. In particular, shorter refueling outages and improved forced outage rates have contributed to increasing capacity factors achieved by the Company's nuclear fleet as discussed above.

Q. HOW DOES ACHIEVING A HIGH CAPACITY FACTOR BENEFIT CUSTOMERS?

A. The system average capacity factor of 95.88% was more than 2% above the target performance the Company hoped to achieve in 2010. A cost impact modeled analysis indicates that a 2% increase in nuclear capacity factor results in annual fuel savings of at least $30 million for customers. This record setting operational performance by the Company's seven nuclear units resulted in significant, real savings for customers.

Q. HOW DOES THE COMPANY'S NUCLEAR FLEET COMPARE TO OTHERS IN THE INDUSTRY?

A. In 2010, Duke Energy Carolinas' nuclear fleet ranked first or second in most Key Performance Indicators ("KPIs") among other U.S. nuclear fleets and was first in total operating cost per megawatt hour produced. These results are based on a comparison of the Company's nuclear fleet to the nine other domestic nuclear fleets using KPIs in the areas of personal safety, radiological dose, automatic shutdowns, capacity factor, forced loss rate, INPO performance index, and total operating cost. Industry benchmarking efforts are a principal technique used by the Company to ensure best practices. These efforts as well as those discussed below further ensure overall prudence and reliability of the Company's nuclear units. Customers benefit from the generation provided by these highly efficient, reliable, low-cost, greenhouse gas emissions free nuclear units that supply more than 50% of the Company's total generation.

Q. MR. JAMIL, WHAT IS THE COMPANY DOING TO CONTINUE THIS TREND OF QUALITY OPERATIONAL PERFORMANCE?

A. The Company has remained committed to continuing the trend of quality operations and efficiencies. In 2009, the Company formed the Centers of Excellence ("COE") group to focus on improving fleet performance in radiation protection/chemistry, human performance/personal safety, operations, maintenance, work management, and training. The COE group significantly matured in 2010 driving numerous fleet improvements by recognizing industry standards of excellence, comparing those standards to the Company's nuclear performance and then correcting identified gaps to excellence. Additionally, in December 2010, the Company announced the creation of a Nuclear Fleet Organization Effectiveness initiative, which focuses on identifying and addressing issues that could impede effectiveness across the nuclear fleet. A key goal of this initiative is to align continuous improvement efforts at a fleet level, taking advantage of synergies related to shared experiences and best practices on a larger scale across the fleet.

Further, the Company continues to capitalize on innovation and efficiencies identified by individual contributors within the organization. For example, an employee at Oconee designed a water distribution device that sprays water on used nuclear fuel in spent fuel pools and reduces airborne activity. Recent events in Japan prompted the NRC and other U.S. officials to request the device to aid efforts in securing the Fukushima Daiichi plant. The device was ultimately not needed, but its unique function and performance prove noteworthy. Another employee was recently honored internationally for innovation with a device designed to help prevent pump failures by using a laser beam to mark pump bearing houses for the appropriate oil level.

Q. PLEASE DESCRIBE MAJOR CAPITAL PROJECTS UNDERTAKEN BY THE COMPANY DURING 2009 AND 2010?

A. Investments at Catawba include continued replacement and upgrading of the service water system and installing digital process systems ("DCS") in the control room. DCS provides the operators state-of-the-art technology to operate the plant, control plant parameters by redundant instrumentation, and minimize transients or deviations of operating parameters. At McGuire, the DCS system is also being installed as well as an upgraded fire detection system. And at Oconee, preparations for the installation of a new safety-related digital reactor protection system advanced the readiness for a 2011 implementation, as well as multiple equipment and systems upgrades to the facility. With respect to regulatory compliance, the Company continued modifications to the Oconee auxiliary building and emergency injection tanks to provide supplemental protection from the effects of seismic activity or other natural phenomenon based on updated standards published in recent years. Also, at Oconee, implementation of the new safety-related protected service water system progressed significantly, and the Company completed the work necessary to comply with regulatory requirements such as an NRC Security Rule, which required updated security measures at nuclear plants across the country. These updated security measures include, for example, establishing additional methods for physical barrier monitoring to ensure appropriate levels of security within the facility.

Q. MR. JAMIL, IN YOUR OPINION ARE THESE NUCLEAR GENERATION ADDITIONS USED AND USEFUL IN PROVIDING ELECTRIC SERVICE TO DUKE ENERGY CAROLINAS' ELECTRIC CUSTOMERS IN SOUTH CAROLINA?

A. Yes. As a result of the Company's successful efforts to renew the licenses of its nuclear fleet and to refurbish obsolete equipment and systems, customers will continue to benefit from the generation provided by this reliable, cost-effective, and greenhouse gas emissions free base load source of electricity into the early-2040s. The Company's investments in refurbishment and enhanced performance of the existing nuclear fleet allow for the continued safe, reliable, and efficient operation of these assets that is reflected in the nuclear capacity factors I discussed above.

Q. WHAT MAJOR CAPITAL INVESTMENTS IS THE COMPANY PROPOSING TO INCLUDE IN RATES RELATIVE TO ITS NUCLEAR FLEET?

A. Since the Company's 2009 Rate Case and as noted above, necessary investments have been made to upgrade and modernize the nuclear fleet through refurbishment of aging equipment, upgrading or replacing obsolete equipment, and adding or upgrading plant systems based on changing regulations and standards. Since the conclusion of the 2009 Rate Case, Duke Energy Carolinas will have closed capital projects of approximately $837 million, including pro forma adjustments, to improve the performance and ensure reliable extended life operations of nuclear assets. The revenue requirement on these additions to plant in service is included in the revenue requirement presented by Witness Shrum.

Q. ARE THERE CAPACITY CHANGES PLANNED FOR THE NUCLEAR FLEET?

A. Yes. Duke Energy Carolinas plans for capacity additions in support of resource requirements with nuclear uprates adding 243 MWs of net capacity by 2019 (updated since the 2010 Integrated Resource Plan ("2010 IRP") filed September 1, 2010 in Docket No. 2010-10-E). These uprate activities are planned in phases with Phase 1 scheduled through 2014. The Phase 1 projects include gains in the most readily available MWs with the preference toward minimizing the need for design changes. One type of uprate included in Phase 1 is measurement uncertainty recapture, which involves using modern instrumentation that allows recapturing capacity lost as a result of operating within a practical margin based on limits of older instrumentation. Phase 1 is expected to net a total of 111 MWs of capacity. Phase 2 includes upgrade efficiency opportunities currently being evaluated with an estimated gain of approximately 132 MWs of net capacity.

Q. WHAT TYPES OF PROJECTS ARE IN THE CAPITAL BUDGET FOR NUCLEAR OPERATIONS FOR THE NEAR FUTURE?

A. Over the next three years, the Company's plans include approximately $2 billion in capital spending. Major capital projects include work related to the goal of continued safe, reliable and efficient operations, continued refurbishment of aging equipment, replacement or upgrades of obsolete equipment, and upgrades and additions to plant systems based on changing regulations and standards. Many of these maintenance and expansion capital projects are driven by regulatory requirements and extend over several years, requiring significant capital investments each year.

Specific examples of projects include upgrades at all three nuclear sites to improve containment insulation, transformers, reactor coolant pumps, cyber security, and fire detection measures, which are described in more detail later. Oconee projects include upgrades to external flooding protection, protected service water, main stream isolation valves, safe shutdown facility, feedwater pump turbines, and cathodic protection. Also at Oconee is the installation of the Reactor Protection System ("RPS") and Engineered Safety Features Actuation System ("ESFAS") for unit 3 in 2012 and unit 2 in 2013, as well as upgrades to protections for tornado and breaks in high pressure lines ("Tornado HELB project"). These key projects are described in more detail below.

At McGuire and Catawba, planned upgrades include improvements to the generator/exciter, nuclear service water and feedwater pump turbines and cathodic protection. Additionally, as previously noted, nuclear capacity uprates are planned at all three nuclear stations. Phase 1 includes capital expenditures for upgrades to high and low pressure turbines, as well as measurement uncertainty recapture upgrades that involve modern and highly improved instrument technology. These upgrades to more modern equipment and instrumentation will increase output and improve on the operating limits for the units.

The Company also plans for capital expenditures associated with development work to preserve the option to build the Lee Nuclear Station to be located in Cherokee County, South Carolina. A description of such development work can be found in direct testimony filed on January 7, 2011 in Docket 2011-20-E and presented before this Commission earlier this year.

Further, the Company is undergoing evaluations of safety and security related to the recent events at the Japanese Fukushima Daiichi nuclear plant. Additional requirements resulting from this situation are uncertain as noted above; however, the nuclear industry will continue monitoring and evaluating findings to develop and deploy any needed long-term corrective actions that may necessitate capital and/or O&M investment over and above the current budget.

Q. PLEASE DISCUSS THE DIGITAL CONVERSION REPORTED FOR OCONEE AND HOW THAT CONVERSION WILL ENHANCE PLANT SAFETY AND RELIABILITY.

A. As reported in various news media outlets, Oconee is leading the nation with a digital conversion in the control room. In January 2010, the NRC approved the replacement of the existing analog RPS/ESFAS with an integrated combined digital control system. This was the first NRC approval for such a digital safety-related system, which will replace the existing analog systems that are technically obsolete and increasingly less reliable. This digital upgrade of the RPS/ESFAS will provide a highly dynamic system promising improved reliability and lower obsolescence risk.

This conversion is a first-of-its-kind evolution, with the potential of becoming a cornerstone for future safety-related digital upgrades throughout the nuclear industry. The upgrade will result in, among other things, improved monitoring circuitry on the reactor coolant pump, added redundancy of safety features, and an increased ability for automated testing. The equipment has been on-site for testing since May 2010, and training has been in progress for the operators and maintenance technicians. Implementation at Oconee is planned on all three units over the next three years, with the first unit implementation (unit 1) completed in early June 2011. Total costs for the unit 1 upgrade, which has spanned multiple years, is estimated at $97 million. As noted in the media, other utilities are awaiting the completion of this effort as a benchmark and learning tool for expanding conversions throughout the nation. The Company will also utilize lessons learned on this initial implementation for its other nuclear units to ensure cost effectiveness.

Q. MR. JAMIL, ARE THERE OTHER SIGNIFICANT PROJECTS TO ENHANCE SAFETY AT THE COMPANY'S NUCLEAR PLANTS?

A. Yes. The NRC's approval of risk-informed upgrading of fire protection measures, also at Oconee, was the second in the nation following Progress Energy's Shearon Harris facility in North Carolina. This effort involves adding fire detection systems and upgrading structural fire barriers. Over the next two years, this effort will provide more layers of protection and safety for workers and the public. Also, the

Company plans to adopt the new standards outlined in the National Fire Protection Association 805 Alternative Fire Protection Rule (10 CFR 50.48(c)) at McGuire and Catawba. Work to implement these standards is scheduled to take place in the next three years with estimated pricing of close to $20 million.

Additional Oconee upgrades include enhancing safeguards already in place with the Tornado HELB project mentioned above. These upgrades are specific to Oconee because this station was built with a different design and prior to the Company's other stations. Thus, the implementation of these upgrades results in the Company meeting safeguards and standards not in place at the time of construction. Again, these upgrades are providing more layers of protection to an already well-protected facility. The Tornado HELB project began in 2008 and is scheduled to conclude in 2012. Beyond the Test Period, planned project work includes completion of construction related to protected service water and natural phenomenon barrier systems. As noted previously, the Company projects that it will have recorded $534[4] million in CWIP associated with Tornado/HELB project as of October 31, 2011.

Q. PLEASE PROVIDE AN OVERVIEW OF THE COMPANY'S NUCLEAR OPERATING COSTS AND DESCRIBE HOW THESE COSTS COMPARE TO THE INDUSTRY.

A. O&M expenditures for the Company's nuclear facilities are made up of both fuel and non-fuel items. In 2010, Duke Energy Carolinas' nuclear fleet had the lowest total operating cost for the industry, as compared to all other U.S. nuclear fleet operators, based on Electric Utility Cost Group ("EUCG") cost and performance

[4] On a total system basis, including AFUDC.

results. EUCG is an industry group that provides a high-level industry view of station performance in relation to the industry. The Company's 2010 average total operating cost, which includes operating and maintenance, administration and fuel costs was $19.61/megawatt-hour. Following are some highlights related to the Company's efforts to mitigate costs and reflective expectations discussing first the fuel component of O&M. During the Test Period, approximately 30% of the required O&M expenditures for the nuclear fleet were fuel related. A complete discussion of nuclear fuel costs in the Test Period can be found in Witness Culp's testimony filed with this Commission on July 27, 2011 in Docket No. 2011-3-E.

Q. IS THE COMPANY TAKING STEPS TO ADD STABILITY TO NUCLEAR FUEL COSTS AND TO MITIGATE PRICE INCREASES IN THE VARIOUS COMPONENTS OF NUCLEAR FUEL?

A. Yes. Duke Energy Carolinas relies extensively on staggered long-term contracts to cover the largest portion of forward requirements. By staggering long-term contracts over time and incorporating a range of pricing mechanisms, the Company's purchases within a given year consist of a blend of contract prices negotiated at many different periods in the markets, which has the effect of smoothing out the Company's exposure to price volatility.

The Company is also working with its fuel vendors to develop alternative fuel assembly design options. These are long-term projects, however. The typical product development time for a major fuel assembly design change can range from eight to ten years to allow for adequate design development, laboratory testing, and in-reactor verification of the design for three fuel cycles. Such improved designs would be expected to help mitigate increases in uranium and enrichment costs in future years.

Q. WHAT CHANGES DOES THE COMPANY FORESEE WITH NUCLEAR FUEL COST?

A. Duke Energy Carolinas anticipates an increase in nuclear fuel expense. A portion of the fuel residing in the reactors during the Test Period will have been obtained under contracts negotiated prior to market price increases. As fuel with a low cost basis is discharged from the reactor and lower priced legacy contracts continue to expire, nuclear fuel expense will increase. In addition, the ongoing transition to a new fuel design at Oconee will increase fuel requirements and costs; however, the new design provides the station with significantly improved in-core fuel performance reliability.

Although costs of certain components of nuclear fuel are expected to increase in future years, nuclear fuel costs on a cents per kilowatt hour ("kWh") basis will continue to be a fraction of the cents per kWh of fossil fuel. Therefore, customers will continue to benefit from the Company's diverse generation mix and the strong performance of its nuclear fleet through lower fuel costs than would otherwise result absent the significant contribution of nuclear generation to meeting customers' demands.

Q. MR. JAMIL, PLEASE DESCRIBE OTHER ACTIVITIES PUTTING PRESSURE ON O&M EXPENDITURES.

A. Nuclear power plant operations are very labor intensive; therefore, a significant portion of O&M costs are related to internal and contracted labor. The Company expects to experience continued upward pressure on these ongoing labor costs. As I discussed in the 2009 Rate Case, the NRC's 10 CFR Part 26 rule ("fatigue rule") restricts the number of hours certain personnel may work at a nuclear facility. The fatigue rule is intended to enhance fitness for duty for personnel at nuclear power plants, and includes requirements for work hour limits, break limits, and minimum time-off between shifts for groups performing work that directly affects safety and security at the plant.

In addition, like the nuclear industry as a whole, Duke Energy Carolinas faces an aging workforce. To address this issue, the Company has enhanced existing workforce pipeline development programs and has maintained a partnership developed in 2006 for a two-year Associate's Degree Program in Radiation Protection Technology with the Spartanburg Community College. The Company has continued providing the instructors for this program, and performs on the job training and training performance evaluations at Spartanburg Community College with Duke Energy Carolinas employees. This program provides a steady source of radiation protection technicians. The Company is also working in conjunction with, and is part of, the Nuclear Energy Institute Workforce Taskforce to develop an industry wide approach for accelerating workforce development. At a regional level, the Company is also part of energy workforce consortiums in Ohio, Indiana and the Carolinas. The mission of these consortiums is to provide a sustainable qualified workforce to support the energy industry. Aside from these national and regional efforts, Duke Energy is most active at the local level working with community colleges developing programs to augment and achieve more tactical and specific results to address the challenges related to an aging workforce. The biggest expenses are associated with start-up which will occur with the operations program at Gaston College. This program is currently scheduled to begin with the fall 2011 semester and is specifically designed to address the aging workforce.

Further, the Company has seen increases in NRC fees that nuclear owners and operators pay annually pursuant to (1) Part 170, which covers review of applications for new licenses, renewal applications, amendment requests, and inspections, and (2) Part 171, which provides for recovery of regulatory and other generic costs. In June 2009, the NRC issued its Revision of Fee Schedules for FY2009 (10 CFR Parts 170 and 171) indicating (1) an increase in the hourly rate for Part 170 fees for both the reactor and materials programs, and (2) an increase in the Part 171 annual license fee that nuclear operators pay per reactor. These fees increased again in 2010 based on the NRC's Revision of Fee Schedules for FY2010 (10 CFR Parts 170 and 171).

Q. WHAT INITIATIVES HAS THE COMPANY TAKEN TO INCREASE EFFICIENCIES IN NUCLEAR OPERATIONS?

A. The Company uses competitive benchmarking, long-range planning, work prioritization tools, and other processes to continuously improve operational and cost performance. Over the years, the Company has gained efficiencies from the implementation of common policies, practices, and procedures across the Duke Energy Carolinas nuclear fleet. In addition, efficiencies are sought through incorporation of industry best practices. As noted previously, the COE group remains focused on improving fleet performance in various areas, and the focus of the organizational effectiveness initiative is on identifying and addressing issues within the nuclear organization. Its goal is aligning operations at a fleet level, taking advantage of shared experiences and process improvement opportunities. Because of the COE team's efforts, fewer refueling outage days were required in 2010 which contributed to the record setting capacity factors noted above. The total refueling outage days in 2010 was 134, beating the previous best for a four-outage year of 157 set in 2001. Overall, improvement efforts result in enhanced fleet reliability and efficiency on a cost per kWh basis.

Q. WHAT CHALLENGES DOES DUKE ENERGY CAROLINAS FACE AS TO ITS NUCLEAR OPERATIONS?

A. Despite the success of the Company's efficiency initiatives, Duke Energy Carolinas continues to face upward pressure on O&M costs including escalation of labor costs. In addition, the costs to perform maintenance work necessary to address reliability and regulatory concerns are increasing due to rising costs for materials and supplies. Further, as discussed previously, the long-term regulatory requirements resulting from the situation in Japan are yet to be determined but could further increase challenges to costs and operations.

As noted, one of the most significant challenges facing the nuclear industry is the cost and technological requirements for modernizing systems and equipment within nuclear stations across the country to ensure safe, reliable, and economical generation that emits zero greenhouse gases. Therefore, maintaining the Company's existing nuclear fleet and adding additional nuclear capacity with uprating efforts are critical to achieving significant reductions to the levels of greenhouse gas emissions.

III. FOSSIL/HYDRO AND RENEWABLE FLEET

Q. MR. JAMIL, PLEASE DESCRIBE DUKE ENERGY CAROLINAS' FOSSIL/HYDRO AND RENEWABLE GENERATION PORTFOLIO.

A. The Company's fossil/hydro and renewable[5] generation portfolio consists of approximately 14,000 MWs[6] of generating capacity, made up as follows:

Coal-fired generation -	7,654 MWs
Hydro generation -	3,157 MWs
Combustion Turbines[7] -	3,120 MWs
Solar PVDG -	10 MWs

This portfolio includes a diverse mix of units that, along with nuclear capacity, allow the Company to meet the dynamics of customer load requirements in a logical and cost-effective manner. As customer load has grown, a greater percentage of that load has been served from the coal-fired units. In 2010, the coal-fired units provided approximately 47% of Duke Energy Carolinas' total generation, the combustion turbine and hydro fleets contributed approximately 1% each, and Solar PVDG provided less than 1%. New generation resources coming in service in 2011, including 620 MWs of combined cycle combustion turbine generation and 58.5 MWs for uprates in hydro generation, will increase this portfolio.

[5] The renewable portfolio includes co-fired generation utilizing a blend of coal and biomass fuel included in the coal fired generation, qualifying hydro facilities included with the hydro generation, and solar PVDG.
[6] As of December 31, 2010.
[7] Combustion turbines can operate on natural gas or fuel oil.

Q. WHAT CHANGES TO THE COMPANY'S FOSSIL/HYDRO AND RENEWABLE PLANT CAPACITY WERE MADE DURING THE TEST PERIOD?

A. In 2010, there were multiple de-rates (reduction of output capability) among the old combustion turbine fleet at Buck, Buzzard Roost, Dan River, and Riverbend stations totaling 144 MWs due to operating limitations. These turbines, added in the late 1960's or early 1970's, are all approaching end of life and finding parts required for optimal operation is increasingly difficult. Additionally, within the hydro fleet, approximately 32 MWs of capacity are scheduled for repair over the next three year period to return these assets to service.

Further, the Company has added or continued renewable resources, which include co-firing generation utilizing a blend of coal and biomass fuel products, qualifying hydro facilities and Solar PVDG installations. The addition and continuing growth of renewable generation within the portfolio is in response to and compliance with North Carolina's REPS requirements and provided a small portion of generation for the Test Period as noted above. As noted previously, South Carolina retail customers are held harmless with respect to the Company's renewable generation. South Carolina customers do, however, benefit from having renewable resources providing environmentally cleaner generation.

Q. WHAT ARE THE COMPANY'S OBJECTIVES IN THE OPERATION OF ITS FOSSIL/HYDRO AND RENEWABLE GENERATION ASSETS?

A. The Company's fossil/hydro and renewable generation groups seek to safely provide reliable and cost effective electricity to our Carolinas' customers through our focus in a number of key areas. Operations personnel and other station employees are well-trained and execute their responsibilities to the highest standards in accordance with procedures, guidelines and a standard operating model. Like safety, environmental compliance is a "first principle," and the Company works very hard to achieve high level results. For example, station equipment and systems are cost-effectively maintained to ensure the reliability and availability of generating units. To continue providing low-cost power to customers, the Company consistently updates work plans and projects that enhance the performance of systems, equipment, and personnel. Additionally, equipment inspection and maintenance outages are scheduled during the spring and fall months when electricity demand is reduced due to weather conditions. These outages are well-planned and executed with the primary purpose of preparing the plant for reliable operation until the next planned outage.

Q. PLEASE DISCUSS THE PERFORMANCE OF THE COMPANY'S FOSSIL GENERATING SYSTEM DURING THE TEST PERIOD.

A. The Company's fossil generating system operated efficiently and reliably during the Test Period. Two key measures are used to evaluate the operational performance of generating facilities: (1) equivalent availability factor, and (2) capacity factor. Equivalent availability factor refers to the percent of a given time period a facility was available to operate at full power. Capacity factor measures the generation a facility actually produces against the amount of generation that theoretically could be produced, based upon its maximum dependable capacity.

The Company's seven base load coal-fired units achieved results of 84.2% equivalent availability factor and 70.5% capacity factor over the Test Period. During the peak summer season within this Test Period (May–Aug), these base load units achieved results of 84.7% equivalent availability factor and 76.8% capacity factor. The Company's thirteen intermediate coal-fired units achieved results of 91.2% equivalent availability factor and 46.6% capacity factor over the Test Period, and performed similarly during the summer peak months at 92.7% equivalent availability and 60.9% capacity. The ten peaking coal-fired units achieved results of 85.4% equivalent availability factor and 14.7% capacity factor for the Test Period, and also performed similarly during the summer peak months with 84.5% equivalent availability and 27.3% capacity. The Company's combustion turbines were available as needed in this time period, with a 99.3% starting reliability result for the large combustion turbines at the Lincoln, Mill Creek, and Rockingham stations.

These results are indicative of solid performance, and good operation and management of the Company's fossil fleet during the Test Period.

Q. MR. JAMIL, LOOKING SPECIFICALLY AT THE COMPANY'S COAL-FIRED ASSETS, HOW DID THE UNITS PERFORM DURING THE TEST PERIOD AS COMPARED TO THE INDUSTRY?

A. Duke Energy Carolinas continues to be an industry leader in achieving low heat rates, which indicate an efficient generating system using less heat energy from fuel to generate electrical energy. Over the Test Period, the average heat rate for the coal fleet was 9,656 BTU/kWh. In operating performance data for 2009, published in the December 2010 issue of *Electric Light and Power* magazine, the Company's Belews

Creek Station ranked as the country's third most energy efficient coal-fired generator with a calculated heat rate of 9,336 BTU/kWh. Over the Test Period, the Belews Creek units provided the majority (37.2%) of coal-fired generation for the Company.

Overall, the coal-fired units achieved a fleet-wide availability factor of 86.3% for the Test Period and 86.9% during the summer peak months. These results are better than the most recently published North American Reliability Corporation ("NERC") average equivalent availability for all North American coal plants of 84.2%. This NERC availability average covers the period 2005-2009 and represents the performance of over 900 North American coal-fired units.

Q. PLEASE DISCUSS THE PERFORMANCE OF THE COMPANY'S HYDROELECTRIC FLEET DURING THE TEST PERIOD.

A. The hydroelectric fleet had outstanding operational performance during the Test Period, with a weighted availability factor of 90.3% which is higher than the most recently published NERC average of 85.3% for the period 2005-2009 representing more than 1000 North American hydro units. Repairs are presently scheduled for older facilities, as mentioned previously, and drought conditions were not experienced during the Test Period.

Q. PLEASE DISCUSS THE PERFORMANCE OF THE COMPANY'S RENEWABLE GENERATION DURING THE TEST PERIOD.

A. Similar to the generation data, the performance metrics for co-firing and qualifying hydro are included in the above noted coal-fired and hydro performance data respectively. The Company is currently analyzing the best method of tracking performance measures associated with the Solar PVDG; therefore, results are not yet available.

Q. PLEASE DESCRIBE THE MAJOR CAPITAL PROJECTS THE COMPANY PURSUED FOR THE FOSSIL/HYDRO AND RENEWABLE FLEETS DURING 2009 AND 2010.

A. Significant investments to the coal-fired fleet include Flue Gas Desulfurization ("FGD" or "scrubber") equipment at Cliffside unit 5 which began commercial operation in October 2010. Other projects include a coal blending expansion at Marshall, upgrades at Belews Creek, and dry ash conversion at Allen. For the combustion turbine fleet, there was a significant investment at Rockingham related to the hot gas path inspections, and for the hydro fleet, the major contributor on expenditures involved the Catawba Dam seismic structure improvements.

The 2011 addition of new generation with the combined cycle combustion turbine at the Buck Steam Station site ("Buck CC") will provide an addition of 620 MWs of generation. Buck CC will be the first combined cycle facility built and operated by the Company in the Carolinas, and will benefit customers by providing generation capacity that is more efficient and cleaner than the older coal-fired capacity scheduled for retirement. This project will be operational this year.

In addition, the Company has been constructing a new powerhouse downstream of the Bridgewater Hydro Station at the toe of the Linville Dam located near Morganton, North Carolina. The new powerhouse will be operational this year and will increase generation by 8.5 MWs, as well as add dissolved oxygen to improve downstream aquatic habitat. In addition to constructing this new powerhouse, crews and divers have been repairing the existing intake structure. This effort is part of a nationwide initiative by the Federal Energy Regulatory Commission ("FERC") to increase the safety of dams during severe earthquakes, which also includes making improvements to the three dams that form Lake James.

Also in the hydro fleet, the upgrade of units 1 and 2 at Jocassee Hydro Station was completed in late May 2011. This upgrade involved adding new runners on each unit to improve efficiency and increase capacity by 50 MWs in total. Jocassee is a pumped-storage hydro facility that works as a conventional hydro station and is designed with the ability to reverse the turbines and pump back previously used water from Lake Keowee into Lake Jocassee. This design allows for pumping during lower demand periods for the purpose of reusing water for generating electricity during higher demand periods. This upgrade not only increased the output capacity by 50 MWs but provided an additional 75 MWs of pumping capability. Renewable additions during the 2009 and 2010 period totaled approximately $37 million and include Solar PVDG projects at eighteen commercial sites and seven residential sites for a total of approximately 10 MWs.

Q. MR. JAMIL, WILL THE BUCK CC, BRIDGEWATER HYDRO AND JOCASSEE PUMPED-STORAGE HYDRO BE USED AND USEFUL IN 2011?

A**.** Yes.

Q. WHAT MAJOR CAPITAL INVESTMENTS IS THE COMPANY PROPOSING TO INCLUDE IN RATES RELATIVE TO ITS FOSSIL/HYDRO AND RENEWABLE FLEETS?

A. Since the conclusion of the 2009 Rate Case through the close of this case, Duke Energy Carolinas will have closed $1.9 billion to plant in service to add new generation, improve the performance of its fossil and hydro facilities, and complete additional environmental equipment installations. The revenue requirement on these additions to plant in service, including pro forma adjustments, is reflected in the revenue requirement provided by Witness Shrum.

Q. ARE THE COSTS CHARGED TO THE BUCK CC, BRIDGEWATER HYDRO AND JOCASSEE PUMPED-STORAGE HYDRO PROJECTS REASONABLE AND PRUDENT?

A. Yes. The Company has closely monitored the costs and progress of these projects to ensure that costs are reasonable and prudent. These projects were comprehensively engineered, and Project Managers closely monitor performance and measure progress against project schedules and budgets, making accommodations where necessary. The addition of the Buck CC and the work on the Bridgewater and Jocassee projects will enable the Company to continue providing reliable generation service to customers at a reasonable cost.

Q. IN YOUR OPINION ARE THE REMAINING CAPITAL ADDITIONS USED AND USEFUL IN PROVIDING SERVICE TO DUKE ENERGY CAROLINAS' ELECTRIC CUSTOMERS IN SOUTH CAROLINA?

A. Yes. As a result of the Company's successful efforts installing required environmental equipment, and renewing water permits and licenses within the fossil/hydro fleet, customers will continue to benefit from the generation provided by these reliable assets added since the 2009 Rate Case. The Company's investments in refurbishment and enhanced performance of existing fossil/hydro fleets allow for the continued safe, reliable, and efficient operation of these assets, with the high quality operational performance I discussed above. Likewise, the addition of renewable resources within the generation portfolio provides the Company with added greenhouse gas emissions free generation to benefit customers and enhance services provided.

Q. WHAT NEW FOSSIL/HYDRO AND RENEWABLE GENERATION ARE PLANNED FOR THE DUKE ENERGY CAROLINAS SYSTEM?

A. Another combined cycle combustion turbine facility is being constructed at the Dan River Steam Station site ("Dan River CC"). This new generation resource is on schedule for operation in 2012 providing another 620 MWs to the generation portfolio. As noted, the Company projects that as of October 31, 2011, it will have recorded $415 million[8] in CWIP associated with the Dan River CC plant. In addition, the Company is evaluating possible conversion opportunities utilizing biomass fuel as well as natural gas in units currently scheduled for retirement.

[8] On a total system basis, including AFUDC.

The most significant investment in new generation is the addition of a new, nominally-rated 800 MWs state-of-the-art supercritical pulverized coal unit ("Cliffside unit 6") at the Company's Cliffside Steam Station in Cleveland County, North Carolina, in accordance with the Certificate of Public Convenience and Necessity ("CPCN") issued by the North Carolina Utilities Commission ("NCUC") on March 21, 2007, in Docket No. E-7, Sub 790 ("Cliffside Project"). As of June 30, 2011, Cliffside unit 6 was approximately 88% complete. Although the nominal unit rating based upon worst conditions is 800 MWs, additional engineering work completed subsequent to the NCUC issuance of the CPCN leads the Company to conclude that the average annual output of the new advanced Cliffside unit 6 will be closer to approximately 825 MWs. The Company plans to, and is on schedule to, bring Cliffside unit 6 in service in 2012. As previously noted, Duke Energy Carolinas projects that as of October 31, 2011, it will have recorded $676 million[9] of additional CWIP associated with Cliffside unit 6.

Q. IS DUKE ENERGY CAROLINAS TAKING STEPS TO ENSURE COSTS CHARGED TO THE CLIFFSIDE PROJECT ARE REASONABLE AND PRUDENT?

A. Yes. The Cliffside Project team, consisting of several full-time individuals with extensive experience on similar projects, closely monitors the project performance and measures the progress against the project schedule and budget on an ongoing and continuous basis. The dedicated teams include project management, engineering, procurement, contracts, project controls, construction assurance, O&M, and commissioning experience.

[9] On a total system basis, including AFUDC.

The project teams responsible for monitoring project performance and measuring progress include:

- Assigned, dedicated, and responsible Project Managers for each of the major contracts. These Project Managers are responsible for cost, quality, schedule, and performance within their assigned area of responsibility.
- Engineering, O&M, and commissioning staff review technical documents and drawings to ensure the materials and equipment meet the requirements of the project.
- Technical Directors in the field observe both the material and equipment provided by the suppliers, and the equipment installation activities. Any areas of concern are immediately raised to the responsible Project Manager for resolution.

In addition, the project team developed a cost management system that tracks actual costs, commitments, and approved and pending changes from the approved contract values. This effort allows for rigorous monitoring and appropriate approval of project costs and activities to ensure to ensure they remain reasonable and prudent. Further, the Company engaged, and has continued the engagement with, Ernst and Young ("E&Y") to create an automated monthly invoice review process, and to dedicate two full-time employees to review project invoices on a daily basis.

Q. ARE THE COSTS INCURRED TO DATE FOR THE CLIFFSIDE PROJECT REASONABLE AND PRUDENT?

A. Yes. As of June 30, 2011, the Company had committed $1.6 billion against the capital budget of $1.8 billion, excluding AFUDC. The Company has been and remains committed to providing assurance of prudence and reasonableness. Cliffside unit 6 remains on schedule and several milestones have been accomplished since the previous Rate Case and during the Test Period. The construction of this 825 MW Cliffside unit 6 is a key element in the Company's plan for a low-carbon future. With state-of-the-art emission controls, this unit will significantly remove emission levels of SO_2, NO_x and mercury, and is expected to be among the cleanest and most efficient pulverized coal-fired units in the country. Further, this unit will have the greatest fuel flexibility in the Company's fossil fleet.

Q. ARE ADDITIONAL GENERATION RESOURCES NEEDED?

A. Yes. Given the Company's obligation to retire existing units and the expiration of purchased power resources, Duke Energy Carolinas must make investments over the next three to five years to ensure adequate resources to meet customer demand. Further, resource needs are expected to increase significantly over the next twenty years. The generation resource changes noted below with new generation, uprates at existing facilities, etc. allow the Company to meet resource needs in the short-term only. The 2010 IRP identified approximately 2,200 MWs of additional resources that are needed by 2020. By 2030, that number grows to approximately 6,000 MWs. Further, these resource needs could change, depending on the uncertainties related to emission control regulations that may result in additional retirements and/or earlier retirements of older units.

The resource needs, as noted above, reflect the Company's commitment to retire 587 MWs of older coal units by the fall of 2012 and an additional retirement of 1,080 MWs of older coal units by 2015. Other retirements include older combustion turbine units that total 370 MWs. The Buck CC scheduled to be operational in 2011, along with the Cliffside unit 6 and Dan River CC that are expected to be operational in 2012, will fulfill 2,065 MWs of generation requirement and will contribute to the Company's modernization efforts to reduce the carbon intensity of fleet assets.

Hydro units scheduled for repair and return to service will add 32 MWs of generation to the portfolio. Pertaining to the hydro fleet, the Company has applied for new licenses to operate nearly all of the hydro assets in the Carolinas. In the Company's Nantahala service area, two of the six pending new licenses were recently received. These licenses allow the Company to continue operating these plants for the next 30 years. The Company expects the remaining four licenses in the near future. Also, a license applied for in 2006 is pending with FERC for the thirteen hydro facilities and eleven lakes along the Catawba-Wateree Hydro Project (FERC No. 2232). The current license expired in 2008, but the Company continues to operate these assets under annually renewed license conditions.

In March 2011, the Company made the announcement that the two-year relicensing process for its Keowee-Toxaway Hydroelectric Project in the upstate of South Carolina had begun. The original fifty-year license issued for the two neighboring sites – Keowee Hydro Station with Lake Keowee and the Jocassee

Pumped Storage Hydro Station with Lake Jocassee – was issued in 1966 and is due to expire in 2016. Each of these hydro relicensing efforts has focused on making substantial public input a priority, which resulted in stakeholder agreements filed in both the Nantahala Area relicensing process and the Catawba-Wateree relicensing process.

Additionally, preliminary engineering is underway for converting fuel from coal to natural gas at the Company's Lee Steam Station by 2015. Further, as noted above, the Company is evaluating additional opportunities for converting other units scheduled for retirement. These evaluations will determine feasibility of utilizing biomass fuel or natural gas in support of emission reduction efforts.

Q. WHAT IS THE ANTICIPATED CAPITAL BUDGET FOR FOSSIL/HYDRO OPERATIONS OVER THE NEXT THREE-YEAR PERIOD?

A. The Company has delayed some capital spending where possible in light of the cost containment efforts; however, in order to meet environmental compliance requirements and to continue to provide reliable service to customers, Duke Energy Carolinas plans to invest $2 billion in its fossil/hydro fleets during the period 2011-2013. Included in this projection are the remaining costs for new generation investments as noted above with Cliffside unit 6 and Dan River CC. Also included are cost projections for environmental compliance measures, including anticipated equipment installations, and landfill and wastewater treatment efforts driven by EPA regulation. The Company has projected an anticipated cost of compliance based on proposed regulation expected to be finalized and to take effect during the next three-year period.

Q. WHAT TYPES OF PROJECTS ARE INCLUDED IN THE CAPITAL EXPENDITURES NOTED ABOVE?

A. Capital expenditures include upgrades at Belews Creek Station to boiler feed pump turbine steampath on units 1 and 2, as well as replacement of side mix walls for unit 2. At Marshall Station, projects include replacing the superheater for unit 3, scrubber installation work for unit 4, and front and rear waterwalls work. At Cliffside Station, work will continue to complete construction of unit 6, as well as projects related to landfill and wastewater treatment. There are also landfill projects planned for Belews Creek and Marshall Stations. At the Lee Station, the Company is planning for a natural gas conversion on units 1 through 3 and will expend costs over the next three-year period to move that project forward. This conversion is planned for completion in 2015, as noted in the 2010 IRP. At the Rockingham combustion turbine station, a full scope inspection for the hot gas path is scheduled on unit 3. This requires disassembly of and inspection of all combustion transition and turbine nozzle assemblies.

Also, as described earlier, uncertainties in the environmental regulations arena could impact the Company’s capital expenditures. As noted, the Company’s projections are based on anticipated outcomes of regulation; however, as experienced in the past, final regulation may vary from proposed regulation resulting in changes to projected expenditures. Therefore, uncertainty exists with respect to retirement schedules, added environmental equipment, and/or the need to retire additional generation resources depending on the economics associated with final regulations.

Q. MR. JAMIL, WHAT ARE THE SIGNIFICANT COST DRIVERS IMPACTING O&M EXPENSES FOR THE FOSSIL/HYDRO FLEETS?

A. The Company's O&M expenditures for the fossil/hydro facilities are made up of both fuel and non-fuel items. For the fossil units, approximately 86% of these required O&M expenditures are fuel-related (primarily coal, but also natural gas, fuel oil, environmental reagents, and net proceeds from sale of by-products). Following are some highlights related to the Company's efforts to mitigate costs and reflective expectations related to O&M expenses. A complete discussion of fossil fuel and fuel-related costs in the Test Period is included in the testimony of Witnesses Batson and Roebel filed with the Commission on July 27, 2011 in Docket No. 2011-3-E.

Q. WHAT STEPS ARE BEING TAKEN BY DUKE ENERGY CAROLINAS TO CONTROL COAL COSTS?

A. Duke Energy Carolinas continues to maintain a comprehensive coal procurement strategy that has proven successful over many years in limiting average annual coal price increases and maintaining average coal costs at or well below those in the marketplace. Aspects of this procurement strategy include having the appropriate mixture of contract and spot purchases, staggering contract expirations to limit exposure with price changes for a significant percentage of purchases at any one time, and pursuing contract extension options that provide flexibility to extend terms within some price band. The Company has developed a well-diversified coal supplier base in the Central Appalachia ("CAPP") coal region, although consolidation among the coal producers is making it increasingly difficult to accomplish these objectives.

Q. PLEASE DESCRIBE THE LATEST TRENDS IN COAL MARKET CONDITIONS.

A. The Company expects CAPP coal supply to continue to decline in 2011 and 2012 as constraints for permitting and productivity continue, and as producers shift resources to more profitable metallurgical coal production. Unlike the domestic steam market, the export market for metallurgical coal is very robust, and CAPP producers are able to sell this product for more than $100 per ton at the mine. Increased regulations associated with permitting surface reserves have already impacted CAPP production and have caused uncertainty with both existing and new permits. In particular, permits for Mountaintop Removal ("MTR") mining methods are under increasing scrutiny. A significant volume of the Company's CAPP coal is mined through MTR methods. Therefore, the Company continues to evaluate the sustainability of MTR coal mining, the impact that potentially losing MTR production would have on the Company's coal supply, and the level of coal sourcing flexibility at the Company's plants.

Q. WHAT WOULD THE COMPANY HAVE TO DO TO ENABLE ITS COAL-FIRED PLANTS TO CONSUME NON-CAPP COAL?

A. The design of the Company's Carolinas' existing plants is optimized around CAPP coals, and most of the Company's experience is with those coals. Actual hardware and operational adjustments necessary to burn non–CAPP coal are not fully known at this time. Fuel switching to a different coal basin is difficult because coal quality characteristics vary greatly between coal producing basins or regions. Although the operational and environmental impacts of different coal qualities can be estimated through the Company's engineering models, a complete understanding—and accurate economic assessment—can only be obtained through a properly designed coal test program. Such a test program can often take up to a year at an individual station unit depending on the unit's design and the specific properties of the candidate coal.

A test burn program is being developed and implemented to test different coals at the Company's scrubbed stations. Information developed through these tests will shed light on operational and environmental issues and/or benefits, and allow the Company to determine the lowest cost approach. Continued testing to determine the impacts of burning coal with very different coal quality characteristics will help the Company develop longer-term procurement and operating strategies to achieve the lowest cost for its customers.

Q. WHAT CHANGES ARE EXPECTED IN THE COMPANY'S COST OF COAL CONSIDERING THE MARKET CONDITIONS?

A. Due to significantly higher market prices for 2012, the Company expects commodity costs to increase. This increase is projected to be mitigated by the start-up of Cliffside unit 6 in 2012, which will have increased flexibility to consume non-CAPP coal. For projection purposes, the Company has assumed the Cliffside unit 6 coal supply will originate from the Illinois Basin ("ILLB") coal region at a cost savings compared to the delivered cost of CAPP coal.

Q. WHAT CHANGES ARE EXPECTED IN THE COMPANY'S COST FOR COAL TRANSPORTATION?

A. Duke Energy Carolinas entered into new multi-year rail contract arrangements for the delivery of coal with the Norfolk Southern Railway Company and CSX Transportation, effective July 1, 2010. Transportation costs will increase as a result of these new multi-year contract arrangements with both railroads serving the Company's Carolinas plants. Additionally, ILLB coal supply associated with Cliffside unit 6 (beginning in 2012) will increase transport rates. Overall fuel savings will occur, however, due to lower commodity costs of ILLB coal compared to CAPP coal. Of note, at this time, are the recent escalations in fuel oil prices due to the unrest in Libya. The transportation contracts allow for fuel surcharges that are standard for the industry and based on the fuel oil market. The Company will therefore experience an increase respective to the recent escalations of the market price.

Q. WHAT ARE THE COMPANY'S PLANS FOR PROCURING MORE NATURAL GAS?

A. As previously noted, new generation resources include natural gas facilities. In 2011, Buck CC will become operational followed by Dan River CC by the fall of 2012. As opposed to the existing gas-fired peaking units, the new CC units will be intermediate load units that burn exclusively natural gas. Corresponding with the start up of these units, the Company has entered into a 20-year firm transportation agreement with Transcontinental Gas Pipeline which begins in May 2011. Holding this firm pipeline capacity will ensure the availability of a portion of the needed gas supply on a year-round basis. In addition, the Company will also begin evaluating the purchase of monthly and/or seasonal base load gas supply for a portion of the CCs' anticipated gas burns to reduce price volatility.

Q. WHAT CHANGES ARE EXPECTED IN OTHER FUEL AND FUEL-RELATED ITEMS?

A. Other fuel and fuel-related items include fuel oil, biomass fuel and the reagents associated with environmental equipment. These items are either subject to market fluctuations or procured with the same methodology described above for coal. A complete discussion of these items is included in the testimony of Witnesses Batson and Roebel filed with the Commission on July 27, 2011 in Docket No. 2011-3-E. The Company makes the most effective total cost decisions for operation of each unit, technical capabilities of the equipment, and reagent input and by-product output over the long-term. Further, analyzing and understanding various product markets, the Company seeks to sell by-products of the combustion or environmental treatment processes where there is a market for such materials as a means to minimize or offset the costs it would otherwise incur for their disposal.

Impacts to environmental equipment that might result from regulatory changes, as mentioned previously, will have an additional impact on the use of reagent products. Further, the current regulatory discussions also involve by-product handling and could, therefore, result in rulings that impact the Company's by-product management activities.

Q. MR. JAMIL, PLEASE DESCRIBE THE NON-FUEL O&M EXPENDITURES FOR THE FOSSIL/HYDRO AND RENEWABLE FLEETS.

A. The majority of non-fuel expenditures are for labor costs from Company or contract resources that operate, maintain, and support the facilities. Duke Energy Carolinas will incur additional non-fuel O&M costs in order to operate and maintain new environmental control equipment and new generation resources as discussed above. Over the last several years, the Company has seen rapid and substantial increases in labor, material, and contract services required for the operation and maintenance of new as well as existing facilities. The recent economic downturn has moderated these increases; however, Duke Energy Carolinas will continue to be challenged by high costs for and services driven by market demand, and limited availability of commodities along with skilled technical and craft resources, in addition to inflationary pressures. The Company will continue to review these fuel and non-fuel costs and their drivers, and pursue initiatives that optimize the use of funds for the greatest benefit to overall cost and reliability.

Q. HOW DOES THE COMPANY CONTROL COSTS AND MITIGATE COST INCREASES?

A. Duke Energy Carolinas maintains a continuous focus on improving operational results and cost effectiveness in operation of its fossil and hydro fleets. For example, the Fossil/hydro Generation Excellence Program, established in 2007 as a way of blending the best of the continuous improvement activities going on in the Carolinas and the Midwest, provides each station with a structured process for identifying and evaluating cost savings or process improvement ideas, initiating projects to implement these improvement ideas, measuring results, and sharing of ideas with other stations for implementation as applicable. These efforts support the overall goals of the program to establish a culture of proactively striving for continuous improvement throughout the generation fleet and to work collectively to achieve higher standards through continuous and lasting improvement. For instance, a team working with the FGD equipment in both the Midwest and the Carolinas was recognized for identifying failure mechanisms behind gearbox bearing failures in the FGD systems. The team made recommendations that have resulted in extending the life of the gearbox bearing and offsetting future labor and material costs.

In addition to these continuous improvement and cost reduction efforts, by virtue of operating a larger fleet the fossil/hydro organization has the opportunity to expand its understanding and sharing of best practice and process improvement ideas. Further, sharing of technical resources and other support functions results in overall cost savings for the organization. These improvement initiatives result in a higher-performing and leaner organization, a culture of continuous improvement, and a more cost effective operating structure. Additionally, the Company is working on a partnership with IVY Tech in the Midwest for an Associate Degree in Industrial Maintenance specializing in power plant, gas technology, or line technician skills. This potential partnership has been expanded to include not just Company employees but contractors and other industry companies to optimize the skills available within the Company, as well as enhancing the availability of skilled resources within the industry.

Q. WHAT CHALLENGES DOES DUKE ENERGY CAROLINAS FACE AS TO ITS FOSSIL/HYDRO OPERATIONS?

A. With the additions of environmental control equipment that have been required by federal, state or local regulatory mandates, one of the biggest challenges for the fossil fleet is to effectively incorporate the operation and maintenance of this equipment into the overall management of the fleet. New generation resources as well as conversion efforts with natural gas and biomass fuel will further increase the costs of operation and maintenance of fleet management. Moreover, as discussed above, additional environmental regulations related to both emissions and by-product management are anticipated, which will intensify these challenges even further. The EPA’s 316(b) Cooling Water Intake Rule will also intensify the challenges with modifications and/or upgrades required for both the fossil and nuclear fleets. The Company’s focus on generation excellence, process improvement, and cost control will be critical as older generating units are retired and new generating resources are placed in service.

Q. IS THERE ANYTHING YOU WOULD LIKE TO SAY IN CLOSING?

A. Yes. The Company has a proven history of experience-based, safe, quality, and cost competitive operations of a diverse generation portfolio. To effectively move forward and continue compliance with regulatory requirements, the Company must continue to invest in existing and new resources. Duke Energy Carolinas is positioned to continue as a leader in the industry with a generation portfolio that includes diversity of assets. This base rate increase will allow the Company to continue the tradition of operational excellence and focus on reliable generation.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes.